

REMARKS

As a preliminary matter, Applicant appreciates the Examiner's indication of allowable subject matter contained in claim 5. Although the Examiner indicates that claim 5 needs to be written in independent form to be allowable, claim 5 has already been written in independent form. Therefore, Applicants believe claim 5 should be allowed. Clarification from the Examiner is requested if claim 5 is not allowed.

As a further preliminary matter, the Examiner does not indicate whether claims 7-8 contain allowable subject matter. Therefore, Applicant respectfully requests withdrawal of the finality of the present Office Action to consider these claims. Alternatively, Applicant requests allowance of these claims for the reasons recited below.

Claims 1-4 and 6 stand rejected under 35 U.S.C. 102(b) as being anticipated by Sakai et al. (U.S. Patent No. 6,222,603 B1). In response, Applicant traverses the rejection because the cited reference fails to disclose (or suggest) an area located between the annular seal and a threshold pattern that is provided with liquid crystal.

In the Office Action, the Examiner states that Sakai teaches a liquid crystal display device having a pair of substrates 2a, 2b, and a liquid crystal inserted in an annular seal between a pair of substrates (see FIG. 5 and col. 11). The Examiner also defines a threshold pattern provided in a framed portion between the annular seal and a pixel display area (seal 6), the threshold pattern having an opening connecting the pixel display area with an area provided with liquid crystal and located between the annular seal and the threshold pattern (See opening on right side of seal 6).

Applicant respectfully submits that the Examiner has incorrectly identified the figure that has an opening in the annular seal. FIG. 5, which relates to the second embodiment shown in FIG. 6, does not have an opening in the seal 6. Therefore, liquid crystal can not be provided between the seal 6 and the dummy seal pattern 11. More specifically, Sakai teaches that a degassed liquid crystal is dropped on the substrate 2a on which seal pattern 6 has been formed. With respect to the second embodiment, Sakai fails to disclose or suggest having liquid crystal between the seal pattern 6 and the dummy seal pattern 11. (See col. 5, ln. 50 to col. 6, ln. 51).

FIG. 4 of Sakai shows a seal pattern 6 having a pair of openings on the right-hand side of the seal pattern. A dummy seal pattern 11 is shown surrounding the seal pattern 6. Assuming the Examiner asserts that FIG. 4 allows for liquid crystal to flow from inside the seal pattern 6 to the dummy seal pattern 11, this assertion is incorrect because the dummy seal pattern 11 is removed before liquid crystal fills the seal pattern 6.

Sakai teaches an initial formation of an empty cell. More specifically, the substrates 2a and 2b receive alignment films 7 at step 204, as shown in FIG. 4. Rubbing then occurs, and the surfaces of the alignment films are cleaned at steps 206 and 208. Next, at step 210 a seal pattern 6 having injection openings is formed on one of the substrates. At step 212, spacers 4 are formed on either substrate. Alignment of the substrates 2a and 2b then occurs at step 214. At step 216, the seal pattern sandwiched between the substrates 2a and 2b is secured by applying heat or irradiating ultraviolet rays. Thus, an empty cell is formed. (See col. 4, ln. 29 to col. 5, ln. 10).

At a step 218, the non-used periphery portion of the empty cell is cut off. Then, at step 220 the cell and a pool of liquid crystal are set in a vacuum chamber, and the injection openings of the cell are dipped in the liquid crystal at the vacuum level, and the vacuum chamber becomes stable. The chamber is then leaked to atmospheric air pressure, which fills the cell with liquid crystal, and the injection openings of the cell are sealed with resin. (See col. 5, lns. 11-21).

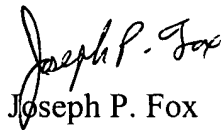
In Sakai, the dummy seal pattern 11 forms a continuous seal that encloses a seal pattern 6 for creating a more uniform gap during the process of attaching the substrates in the vacuum chamber. The dummy seal pattern 11 functions to keep the space inside the seal pattern in a vacuum state while a vacuum chamber is leaked to atmospheric pressure and the seal patterns are cured, until the periphery portion of the empty cell is cut off (i.e., the dummy seal pattern is removed at step 218 prior to dipping the cell into liquid crystal). Therefore, the dummy seal pattern 11 no longer exists upon the filling of the liquid crystal display device. Since there is no dummy seal, the liquid crystal display device of Sakai cannot have a threshold pattern having an opening connecting the pixel display area provided with liquid crystal and located between the annular seal and the threshold pattern. That is, the dummy seal pattern of Sakai is removed during the manufacturing of the liquid crystal display device, and therefore it is impossible for liquid crystal to seep between the seal pattern 6 and the dummy seal pattern 11. For this reason, withdrawal of the §102 rejection of claims 1-4 and 6 is respectfully requested.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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